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09/740,961	12/21/2000	Charles C. Hsu	03440.84880	6298

7590 05/05/2004  
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EXAMINER

TABATABAI, ABOLFAZL

ART UNIT PAPER NUMBER

2625

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/740,961

Applicant(s)

HSU ET AL.

Examiner

Abolfazl Tabatabai

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 and 10-20 is/are allowed.
- 6) ☒ Claim(s) 9 and 21-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **Response to Amendments/Arguments**

1. Applicant's arguments, (pages 5-15), filed on February 17, 2004 with respect to the rejection(s) of claim(s) 1 under Shapiro (U S 5,315,670) in view of Stromberg et al (U S 6,594,394 B1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Shapiro (U S 5,315,670); Taubman et al (U S 6,546,143 B1) and Wu et al (U S 6,353,685).

### **Claim Rejections - 35 USC § 102**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Shapiro (U S 5,315,670).

Regarding claim 1, Shapiro discloses a data processing system augments compression of non-zero value, comprising the steps of:

recursively transforming an image using Discrete Wavelet Transform (column 5, lines 29-33) to create a plurality of levels including at least a first level (column 4, lines 55-66);

quantizing the transformed image at each level (column 5, lines 29-34); and,

encoding the quantized image at each level using run-length coding of a plurality zero coefficients and a predetermined two-knob Huffman table for a plurality of non-zero coefficients (column 6, lines 16-33).

### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 21 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Taubman et al (U S 6,546,143 B1).

Regarding claim 21, Taubman discloses efficient wavelet-based compression on large images comprising:

encoding using a first packing algorithm for a first level of a transformation of the image data (fig. 4 element 32 and column 5, lines 14-24); and,

encoding using a second packing algorithm for a second level of a transformation of the image data (fig. 4 element 34 and column 5, lines 14-24).

Regarding claim 24, Taubman discloses efficient wavelet-based compression on large images comprising the step of encoding using a third packing algorithm for a third level of the transformation of the image data (column 5, lines 34-38).

## **Claim Rejections - 35 USC § 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 22, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taubman et al (U S 6,546,143 B1) in view of Wu et al (U S 6,353,687 B1).

Regarding claim 22, Taubman is silent about the specific details regarding the first packing algorithm includes:

adaptive run-length coding of a plurality of zero coefficients.

In the same field of " image compression " endeavor, however, Wu discloses system for image compression comprising the step of:

adaptive run-length coding of a plurality of zero coefficients. (see column 3, lines 45-55 and column 7, lines 8-20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a run-length coding of a plurality of zero-coefficients as taught by WU in the system of Taubman because Wu provides Taubman an improved image compression technique which provides a fast and more efficient than conventional image compression techniques so this technique can be applies to moving images.

Regarding claim 23, Taubman is silent about the specific details regarding the second packing algorithm includes:

run-length coding of a plurality of zero coefficients; and,  
two-knob Huffman coding of a plurality of non-zero coefficients.

In the same field of " image compression " endeavor, however, Wu discloses system for image compression comprising the step of:

run-length coding of a plurality of zero coefficients (column 7, lines 8-20); and,  
two-knob Huffman coding of a plurality of non-zero coefficients (column 7, lines 21-28).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use run-length coding Huffman coding as taught by WU in the system of Taubman because Wu provides Taubman an improved image compression technique which provides a fast and more efficient than conventional image compression techniques so this technique can be applies to moving images.

Regarding claim 25, Taubman is silent about the specific details regarding the third packing algorithm includes the step of low-frequency differential datapacking of a plurality of coefficients on a row-wise fashion, including a DC coefficient.

In the same field of “ image compression ” endeavor, however, Wu discloses system for image compression comprising the step of low-frequency differential datapacking of a plurality of coefficients on a row-wise fashion, including a DC coefficient (column 6, lines 39-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a DC coefficients as taught by WU in the system of Taubman because Wu provides Taubman an improved image compression technique which provides a fast and more efficient than conventional image compression techniques so this technique can be applies to moving images.

#### **Allowable Subject Matter**

9. The following is an Examiner's statement of reasons for allowance.

The prior art of record fails to teach or suggest, (a) encoding the low-low pass subband level using a low frequency packing algorithm in combination into other elements and features of claims 1,10, 16 and 17.

**10. Claims 1-8 and 10-20 are allowed.**

11. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### **Other prior art cited**

12. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

U. S. Patent (5,867,602) to Zandi et al is cited for reversible wavelength transform and embedded code stream manipulation.

U.S. Patent (5,734,755) to Ramchandran et al is cited for JPEG/MPEG decoder-compatible optimized thresholding for image and video signal compression.

U S. Patent (6,141,446) to Boliek et al is cited for compression and decompression system with reversible wavelets and lossy reconstruction.

U S. Patent (5,819,215) to Dobson et al is cited for apparatus and method for wavelet bases data compression having adaptive bit rate control for compression of digital audio or other sensory data .

### **Contact Information**

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (703) 306-5917.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mehta Bhavesh M, can be reached at (703) 308-5246.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Group Art Unit 2625

May 2, 2004



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